1907MNRAS..67..365.

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MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

Vol. LXVII. April 12, 1907. No. 6

H. F. Newall, Esq., M.A., F.R.S., President, in the Chair.

Arthur Neville Brown, M.A., Ludgrove, New Barnet, Herts;
Harry Cooper, 19 Cromer Road, Eastville, Bristol;
Phanindralal Gangooly, M.A., University, Calcutta, India; and
William Newsam McClean, 42 Durdham Park, Bristol,

were balloted for and duly elected Fellows of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended:—

Major-General Henry Herbert Lee (late R.E.), The Mount, Dinas Powis, near Cardiff, South Wales (proposed by T. E. Heath);
Augustus Edward Hough Love, D.Sc., F.R.S., Sedleian Professor of Natural Philosophy, Oxford (proposed by H. H. Turner);
Rev. Reginald Wm. Bickerton Moore, M.A. Oxon., Vicar of St James', Bath, 11 Devonshire Buildings, Bath (proposed by Rev. D. Higham Sparling); and
Herbert Gerard Tompkins, Examiner of Local Fund Accounts, N.W.P. and Oudh, Lahore, India (proposed by S. A. Saunder).

Anders Donner, Director of the Observatory, Helsingfors, Russia, was proposed by the Council as an Associate of the Society.

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Eighty-eight presents were announced as having been received since the last meeting, including, amongst others :—

Besançon Observatory, Bulletin Astronomique, Bulletin Chronométrique, Bulletin Météorologique, etc., presented by the Observatory.

Astrographic Chart of the heavens; 20 charts presented by the Royal Observatory, Greenwich; 47 charts from the Paris, Algiers, and Toulouse Observatories, presented by the French Minister of Public Instruction.

Determinations of Personal Equation depending on Magnitude, made with the Transit Circles and the Heliometer at the Royal Observatory, Cape of Good Hope. By Sir David Gill, K.C.B., F.R.S., and S. S. Hough, F.R.S., H.M. Astronomer at the Cape.

The observations here discussed were planned at the time when a discussion had arisen between Mr Hinks and Dr Cohn [*] as to the existence of personality depending on magnitude in transit observations made by the Repsold travelling wire method.

The question at issue is so important in connection with the future of meridian observation, that it appeared desirable to devote a considerable amount of time and labour to its settlement. The position of a bright star relative to two symmetrically situated faint stars of equal magnitude can be determined by means of heliometer observations with great precision and absolute freedom from personality. With the modern heliometer the images of the brighter star can be reduced by means of screens to similarity with the images of the fainter stars. Even if we grant that there may be a personality depending on a residual apparent difference of magnitude between the image of the star whose brightness is reduced and that of the other star under measurement, it is impossible to imagine that the observer can be affected by any difference of personality in the measurement of distance of two pairs of stars where one component of one pair precedes and the other follows the star whose magnitude has been reduced by the screen, because the two conditions of measurement are exactly similar.

Farther, if the measures of both distances are made simultaneously (*i.e.* in the order a, b, b, a), the instantaneous scale-value must be the same for both. Then, if we suppose the position-angles also to be measured, we can introduce both the scale-value and the index error of the position-circle as unknown quantities, and determine the R.A. and Dec. of the brighter star relative to the fainter stars—free from all personality. And if the differences of declination are either very small or accurately determined, we

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[*] *Monthly Notices*, lxvi. p. 481, and *Ast. Nach.*, No. 4119.

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